

# TOXIC SECRET

***Pesticides uncovered  
in store brand cereal,  
applesauce, beans  
and produce***



## Acknowledgements

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## About **FRIENDS OF THE EARTH:**

Friends of the Earth U.S., founded by David Brower in 1969, strives for a more healthy and just world. Together we speak truth to power and expose those who endanger the health of people and the planet for corporate profit. We organize to build long-term political power and campaign to change the rules of our economic and political systems that create injustice and destroy nature. Friends of the Earth has over 1.5 million members and supporters in all 50 states, and we are the U.S. voice of the world's largest federation of grassroots environmental groups, with a presence in 75 countries.

Friends of the Earth's Food and Agriculture program works to advance three fundamental shifts in our food system: from chemical-intensive to organic, ecological and regenerative; from corporate-controlled to democratically governed; and from a system that embodies the deepest inequities in our society to one that advances social justice and fulfills the needs of all eaters now and into the future.

## Collaboration

This project is a collaborative effort of environmental, farmer, farmworker, consumer and beekeeper groups across the country. The following organizations and individuals submitted samples: Beyond Toxics, CATA-EI Comite de Apoyo a Los Trabajadores Agricolas, Ecology Center, Environment Texas, Emory University Turner Environmental Law Clinic, Friends of the Earth, Grassroots Environmental Education, Maryland Pesticide Education Network, Northwest Center for Alternatives to Pesticides, Ohio Ecological Food and Farm Association, People and Pollinators Action Network, Pesticide Action Network North America, Toxics Action Center and Toxic Free North Carolina.

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# Toxic Secret

## *Pesticides uncovered in store brand cereal, applesauce, beans and produce*

When most of us do our grocery shopping, we expect that the food we buy should not contain toxic pesticides. But thousands of synthetic pesticides are allowed in non-organic agriculture in the U.S., and many of the most commonly used pesticides are linked to a range of health problems from autism and infertility to cancer and Parkinson's disease. Pesticide residues on food have increased since 2010, according to data released by the U.S. Food and Drug Administration.<sup>1</sup> Approximately 82 percent of domestically grown fruits and 62 percent of vegetables carry residues of weed killers, insecticides and other pesticides.<sup>2</sup>

Friends of the Earth and our allies across the country conducted this testing to discover if pesticide residues are present in foods commonly eaten by children and families found at the top four food retailers in the United States: Walmart, Kroger, Costco and Albertsons/Safeway. Together, we shopped at thirty different stores in fifteen states, and we tested 132 samples of five different foods: fresh whole apples, applesauce, fresh spinach, oat cereal, and pinto beans. This report provides a snapshot of some of the pesticides consumers may be exposed to when eating store brand conventional foods from these retailers

### RESULTS SUMMARY

We tested for three types of pesticides —organophosphate and neonicotinoid insecticides and the herbicide glyphosate.

Organophosphates were found in 100% of applesauce samples, 61% of whole apples and 25% of spinach samples. Levels in apples ranged from non-detect to 1.5 nmol/g with an average of 0.32 nmol/g. Levels in applesauce ranged from non-detect to 3.2 nmol/g with an average of 0.76 nmol/g. Levels in spinach ranged from non-detect to 1 nmol/g with an average of 0.39 nmol/g.

Neonicotinoids were found in 80% of spinach and 73% of applesauce. Levels ranged from non-detect to 0.14 nmol/g in spinach with an average of 0.065 nmol/g. Levels ranged from non-detect to 0.054 nmol/g in applesauce with an average of 0.037 nmol/g.

Glyphosate was found on 100% of oat cereal samples and 100% of pinto bean samples tested. In the absence of federal testing for glyphosate residues on food, this study confirms recent data for oat products released by other organizations.<sup>3,4</sup> Levels in oat cereal ranged from 5 to 931 ppb with an average level of 360 ppb. The average level of glyphosate found in cereal samples we tested was more than twice the “allowable” level set by the Environmental Working Group’s (EWG’s) proposed health benchmark for lifetime cancer risk for children.<sup>5</sup> The highest residue level from a cereal sample (931 ppb, purchased from Walmart) was nearly six times greater than EWG’s benchmark

This report also reveals new data showing significant glyphosate contamination of dry beans. Levels ranged from 7 to 1,850 ppb for pinto beans with an average of 509 ppb. The average level was more than 4.5 times the EWG benchmark, and the highest residue level (1,849 ppb, purchased from Albertsons) was nearly 17 times greater.

These high levels of glyphosate residues are likely a result of using the herbicide just before harvest to dry out crops including wheat, barley, oats and beans so that they can be harvested sooner than if the plants were allowed to die naturally.<sup>6</sup>

### SMALL EXPOSURES MATTER

The latest science demonstrates that small exposures to toxic pesticides can have significant and lifelong impacts and that cumulative exposure from eating a variety of

foods contaminated with multiple pesticide residues can result in additive and synergistic impacts that are harmful to health.<sup>7,8</sup> Even if the level of each chemical exposure is below government safety standards, we are all exposed to a cocktail of toxic pesticides through the food we eat. More than 90 percent of Americans have detectable pesticides in their bodies,<sup>9</sup> and government testing finds at least 29 different pesticides in the average American.<sup>10</sup> Children have unique susceptibilities to the harms of pesticides during fetal development and the early years of life because their brains and bodies are developing so rapidly. Early exposure can impact children for life.<sup>11</sup>

## Organophosphates

We found residues of a class of pesticides, called organophosphates, developed as nerve agent weapons during World War II.<sup>12</sup> Organophosphates are so toxic to children's developing brains, even at extremely low levels of exposure, that scientists have called for a complete ban.<sup>13</sup> They are associated with reduced IQ, attention disorders, delayed motor development, increased risk of learning disabilities, autism spectrum disorder, Alzheimer's, Parkinson's, hormone disruption and cancer.<sup>14</sup> Children ages one to two are exposed to chlorpyrifos — a pesticide in the organophosphate family — in food and water at levels 140 times those deemed to be safe.<sup>15</sup> Organophosphates are also toxic to wildlife, including pollinators, birds and aquatic organisms.<sup>16</sup>

## Glyphosate

We also found residues of glyphosate, the active ingredient in Roundup, now a product of Bayer. Glyphosate is a probable human carcinogen and is linked to high rates of non-Hodgkin's lymphoma in farmers and groundskeepers.<sup>17,18</sup> It is also associated with DNA damage, endocrine disruption and shortened pregnancy.<sup>19,20</sup>

In the environment, use of glyphosate is decimating Monarch butterfly populations by destroying the milkweed plants their young depend on.<sup>21</sup> Recent research has also shown that it can disrupt bee gut microbiomes, linking the herbicide to declines in bee populations.<sup>22</sup>

In addition, overuse of glyphosate has led to resistant “superweeds” on more than 60 million acres of U.S. farmland, with a resulting increase in toxic herbicides 2,4-D and dicamba.<sup>23</sup>

## Neonicotinoids

Finally, we found residues of neonicotinoids. These are among the most commonly reported pesticide residues in infant and toddler foods.<sup>24</sup> Food residues of neonicotinoids cannot be washed off because the pesticide penetrates the tissues of plants.<sup>25</sup> They are associated with endocrine disruption and may affect the developing fetus and child, possibly leading to changes in behavior and attention, including an association with autism spectrum disorder.<sup>26,27,28</sup>

Neonicotinoids, the most widely used insecticides in the world, persist in the environment, creating long-term toxicity in ecosystems.<sup>29</sup> They are a key driver of massive pollinator losses and scientists now warn of a second “silent spring” due to declines in insect and bird populations linked to neonicotinoids.<sup>30,31</sup>

## CREATING A HEALTHY, JUST AND SUSTAINABLE FOOD SYSTEM

Our findings reveal pesticide residues on store brand products of the top four food retail companies in the U.S. Other countries have restricted or banned these pesticides because science demonstrates their toxicity to people and/or pollinators and other living organisms, but we still use massive amounts in the U.S.<sup>32</sup>

These four companies control more than one-third of all retail food and beverage sales in the country.<sup>33</sup> With their enormous purchasing power, these stores could help create a healthy, sustainable and just food system by reducing use of toxic pesticides in their supply chains and increasing offerings of organic foods, prioritizing U.S. farmers. Organic farmers grow abundant food without the use of toxic synthetic pesticides, making organic the gold standard for protecting the health of people, pollinators and the planet.

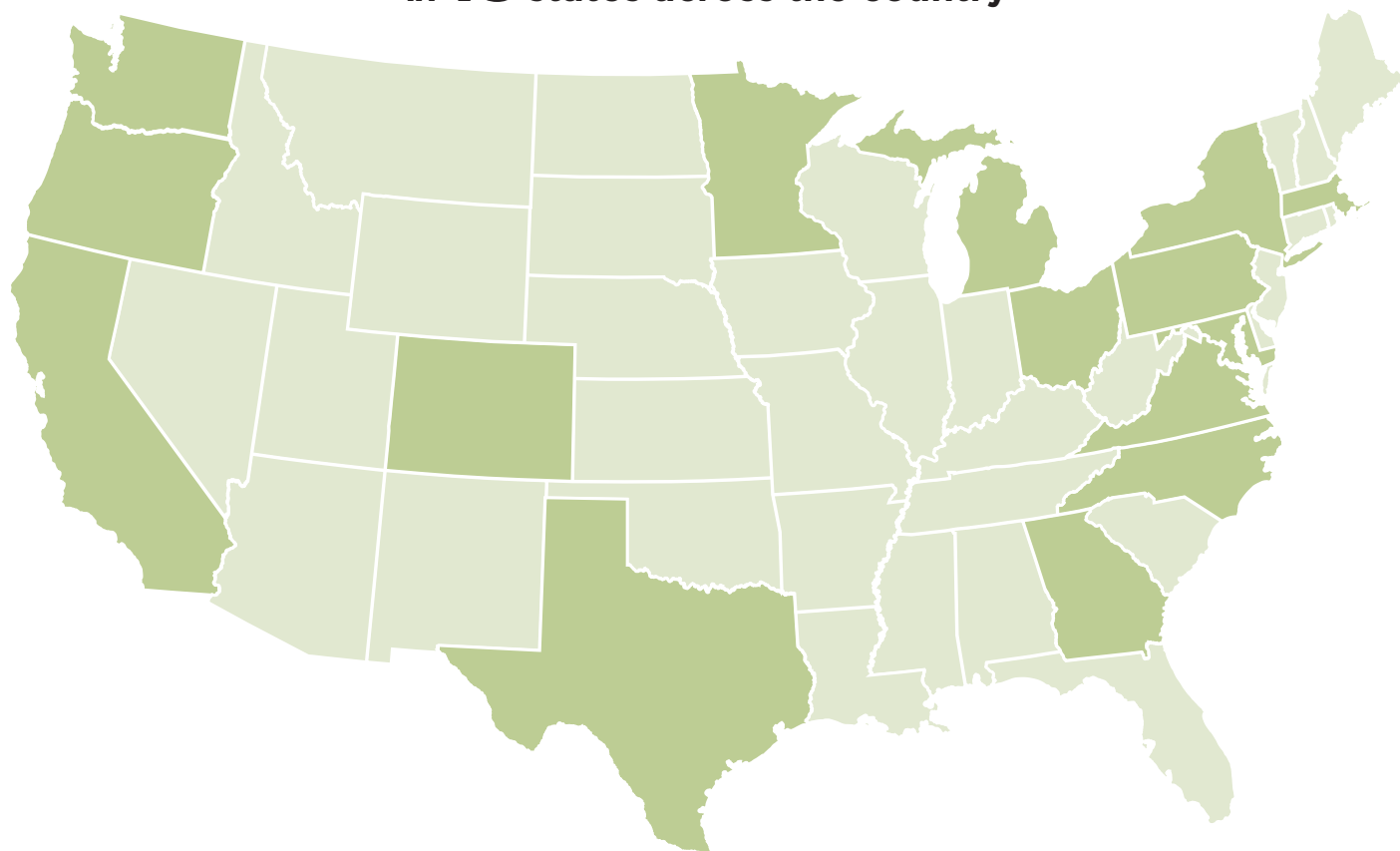
We shopped at the top four food retailers in the U.S.





for their house brands








in **15** states across the country



We tested the food at an independent lab and found residues of glyphosate, neonicotinoid and organophosphate pesticides.

GLYPHOSATE	
<b>30 oat cereal</b> samples tested	<b>27 pinto bean</b> samples tested
	
<b>100%</b> had residues with an average of <b>360 ppb</b>	<b>100%</b> had residues with an average of <b>509 ppb</b>

NEONICOTINOIDS	
<b>22 applesauce</b> samples tested	<b>25 spinach</b> samples tested
	
<b>73%</b> had residues with an average of <b>0.037 nmol/g</b>	<b>80%</b> had residues with an average of <b>0.065 nmol/g</b>

ORGANOPHOSPHATES		
<b>22 applesauce</b> samples tested	<b>28 apple</b> samples tested	<b>25 spinach</b> samples tested
		
<b>100%</b> had residues with an average of <b>0.76 nmol/g</b>	<b>61%</b> had residues with an average of <b>0.32 nmol/g</b>	<b>32%</b> had residues with an average of <b>0.388 nmol/g</b>



## Join us to tell major food retailers to get these toxic pesticides **OUT** of our food

**The top four retailers - Walmart, Kroger, Costco and Safeway/Albertsons - control more than one-third of all retail food and beverage sales in the U.S. They could make a huge difference by committing to:**



Reduce toxic pesticides used in conventional supply chains and support growers to use least-toxic alternatives



Increase U.S. Department of Agriculture-certified organic food and beverages to 15 percent of overall offerings by 2025, prioritizing American farmers



Increase transparency by publicly disclosing company policies and progress related to these goals.

Check out the [Swarming the Aisles Scorecard](#) for more information



# Organic is the solution

## ORGANIC WORKS

The science is clear that organic and other ecological farming methods can yield enough food to feed a growing world population while protecting the ecosystems we depend on.<sup>34</sup> Organic farmers grow healthy and abundant food without the use of an estimated 17,000 pesticide products allowed in non-organic farming.<sup>35</sup> Research shows that switching to an organic diet rapidly and dramatically reduces exposure to toxic pesticides.<sup>36</sup> And an organic diet has been shown to reduce cancer risk by 25 percent.<sup>37</sup>

Organic remains the fastest-growing sector of the food industry; its growth far outpaces the overall food market.<sup>38,39</sup> And the latest data shows that the demographics of organic buyers matches the diversity of the American population.<sup>40</sup> Over 80 percent of U.S. households report buying organic at least sometimes, and a growing number of black and Hispanic families are choosing organic.<sup>41</sup>

## ORGANIC FARMING IS GOOD FOR THE BIRDS AND BEES

Organic farmers foster biodiversity both above ground and in the soil beneath our feet.<sup>42</sup> Organic farms help protect pollinators like bees and butterflies, essential to one in three bites of food we eat.<sup>43</sup> They support up to 50 percent more pollinating species than pesticide-intensive farms and they help other

beneficial insects flourish.<sup>44</sup> Organic farming practices also conserve water and energy and can help mitigate climate change and provide farmers with greater resilience in the face of drought and floods.<sup>45</sup>

## U.S. FARMERS NEED MORE SUPPORT TO TRANSITION TO ORGANIC



Organic farming is an economic boon for farmers, creates more rural jobs and has been shown to help reduce rural poverty.<sup>46,47</sup> But our government subsidizes pesticide-intensive industrial agriculture to the tune of billions of dollars while organic programs are woefully underfunded. As a result, U.S. farmers are losing out on the chance to feed Americans' growing appetite for organic food, and our farms, rivers and rural communities remain soaked in toxic pesticides even as consumer demand for organic booms.<sup>48</sup> Data shows that more U.S. farmers want to transition to organic, but they need government policies and research that support organic farming.<sup>49</sup>





# Time for Action

**Elected officials must protect the health of people and the planet. And the food industry has a responsibility to consumers, the environment and society at large. Here is a snapshot of policy and retailer leaders and laggards.**

	<b>POLICY LEADERS</b>	<b>POLICY LAGGARDS</b>
<b>GLYPHOSATE</b>	<ul style="list-style-type: none"> <li>◆ Banned or restricted in hundreds of locations worldwide, including pending bans in France and Germany.<sup>50</sup></li> </ul>	<ul style="list-style-type: none"> <li>◆ Allowed in U.S. agriculture.</li> <li>◆ U.S. level of allowed residue on food is 3.5 times higher than the European Union's legal limit.<sup>51</sup></li> </ul>
<b>NEONICOTINOIDS</b>	<ul style="list-style-type: none"> <li>◆ Banned for outdoor use in the European Union and Canada has proposed taking similar steps.<sup>52,53</sup></li> <li>◆ Consumer use banned in Maryland and Connecticut.<sup>54,55</sup></li> <li>◆ Restricted by over 115 U.S. cities and universities.<sup>56</sup></li> </ul>	<ul style="list-style-type: none"> <li>◆ Allowed in U.S. agriculture.</li> <li>◆ The Environmental Protection Agency continues to stall scientific review of neonicotinoids. EPA placed a moratorium on new uses, but has not taken action to restrict uses currently on the market.<sup>57</sup></li> </ul>
<b>ORGANOPHOSPHATES</b>	<ul style="list-style-type: none"> <li>◆ Some organophosphates are banned for agricultural use in the European Union.<sup>58</sup></li> <li>◆ Parathion banned for agricultural use in the U.S.<sup>59</sup></li> <li>◆ Chlorpyrifos banned for agricultural use in Hawaii.<sup>60</sup></li> <li>◆ 1996 Food Quality Protection Act has led to reduced use of organophosphates in U.S. agriculture.<sup>61</sup></li> <li>◆ Most home and garden uses banned in the U.S. in 2000 due to overwhelming science on health harms to children.<sup>62</sup></li> </ul>	<ul style="list-style-type: none"> <li>◆ Allowed in U.S. agriculture with few restrictions.</li> <li>◆ The EPA abandoned plans to ban chlorpyrifos, a highly toxic organophosphate pesticide, in 2017, defying the agency's own scientists.<sup>63</sup> In 2018, a federal court ordered the EPA to ban chlorpyrifos.<sup>64</sup></li> </ul>

Of the top 25 food retailers in the U.S., only Whole Foods and Costco have a food-related pesticide policy. Both of these policies are first steps in the right direction, but a great deal more leadership is needed to protect people and pollinators from toxic pesticides.

	RETAILER LEADERS	RETAILER LAGGARDS
GLYPHOSATE	No food retailers have taken action on glyphosate.	
NEONICOTINOIDS AND ORGANOPHOSPHATES	 <p>Whole Foods' Responsibly Grown certification for produce and floral products prohibits the use of organophosphates for all ratings AND prohibits the use of neonicotinoids in products rated "Best."<sup>65</sup></p>  <p>Costco's pollinator health policy encourages all produce suppliers to phase out the use of neonicotinoids and the organophosphate pesticide chlorpyrifos and to utilize eco-friendly methods of pest and disease control including Integrated Pest Management.<sup>66</sup></p>	

## RECOMMENDATIONS

Friends of the Earth, with the support of more than 100 organizations, is working with retailers to address the overuse of toxic pesticides in the food system and to expand organic agriculture.<sup>67</sup> We also work with partners across the country to advocate for local, state and national policies to create a healthy, just and sustainable food system for all.

### Recommendations for retailers:

- ◆ Establish a policy that includes the phase out of neonicotinoids, glyphosate, organophosphates and other

pesticides that are toxic to people and pollinators as well as implementation of alternative, least-toxic pest management strategies and regenerative agriculture practices in the company's supply chain;

- ◆ Increase USDA-certified organic food and beverages to 15 percent of overall offerings by 2025, prioritizing American farmers; and
- ◆ Publicly disclose company policies and progress related to these actions.
- ◆ Advocate for public policies aimed at reducing agricultural pesticide use, protecting pollinators and supporting the expansion of organic and regenerative agriculture in the U.S.

## Recommendations for individuals:

- ◆ **Take action and raise your voice locally:** Let your local food retailer know you want to purchase food grown without toxic pesticides, and support retailers that prioritize organic food and beverages.
- ◆ **Support organic farmers:** When possible, prioritize purchasing organic food and beverages.
- ◆ **Fight for a non-toxic, organic food system for all:** Support public policies that eliminate the use of toxic pesticides, that support the expansion of organic and ecological farming in the U.S. and that help ensure access to organic food for everyone. Learn more and take action at [www.beeaction.org](http://www.beeaction.org).

## Recommendations for local, state and federal policymakers:

- ◆ **Direct public dollars to purchase certified organic food and beverages:** Use food procurement contracts to purchase organic food and beverages. Develop specifications and insert them into your bid solicitation(s) for these products.
- ◆ **Support and pass policies** to eliminate use of neonicotinoids, glyphosate, organophosphates and other toxic pesticides. Adopt policies that incentivize transition to organic production; increase research into diversified organic, agroecological and regenerative production methods; support localized processing and distribution infrastructure; increase access to land for new, beginning and disadvantaged farmers; and educate the next generation of sustainable farmers.

## Recommendations for the U.S. Environmental Protection Agency:

- ◆ Suspend the registrations of neonicotinoids, glyphosate and organophosphates for agricultural as well as cosmetic and other uses and incentivize use of least-toxic alternatives that are benign for human health and the environment.
- ◆ Require a bee hazard statement on the label of all products containing systemic insecticides toxic to pollinators, including soil drenches and foliar-use products.
- ◆ Prioritize the systemic insecticides for Registration Review and ensure inclusion of independent, peer-reviewed research on the acute and chronic effects of systemic insecticides on bees.
- ◆ Expedite the development and implementation of valid test guidelines for sub-lethal effects of pesticides on pollinators and require data from these studies for all currently registered and any new pesticides.

- ◆ Require testing and reporting of synergistic effects between pesticides in Registration Review to reduce the probability of interactive effects amplifying the toxicity of neonicotinoid insecticides.

## METHODS

This project is a collaborative effort of environmental, farmer, farmworker, consumer and beekeeper groups across the country. The following organizations and individuals submitted samples: Beyond Toxics, CATA-EI, Comité de Apoyo a Los Trabajadores Agrícolas, Ecology Center, Environment Texas, Emory University Turner Environmental Law Clinic, Friends of the Earth, Grassroots Environmental Education, Maryland Pesticide Education Network, Northwest Center for Alternatives to Pesticides, Ohio Ecological Food and Farm Association, People and Pollinators Action Network, Pesticide Action Network North America, Toxics Action Center and Toxic Free North Carolina.

Together, we shopped at thirty different stores in fifteen states, and we tested 132 samples of five different foods: apples, applesauce, spinach, oat cereal, and pinto beans. We shopped at Walmart, Kroger, Costco and Albertsons/Safeway and their subsidiaries, and we purchased house brand foods whenever possible. We only purchased non-organic (i.e. conventional) products. Samples were analyzed at Health Research Institute Laboratories. For a complete discussion of laboratory methods and full results, go to [www.beeaction.org](http://www.beeaction.org).



## Retailers and locations where we shopped

RETAILER	STATES WHERE WE SHOPPED	SUBSIDIARIES
<b>Walmart</b>	GA, MD, MI, OH, PA, MA, NY, MN	
<b>Kroger</b>	GA, MI, NC, OH, OR, CO, VA	<ul style="list-style-type: none"> <li>◆ Baker's Supermarkets</li> <li>◆ City Market</li> <li>◆ Dillons Food Store</li> <li>◆ Fry's Food and Drug</li> <li>◆ Gerbes Super Markets</li> <li>◆ Harris Teeter</li> <li>◆ Jay C Food Stores</li> <li>◆ King Soopers</li> <li>◆ Kroger</li> <li>◆ Owen's</li> <li>◆ Pay Less Super Markets</li> <li>◆ QFC</li> <li>◆ Ralphs</li> <li>◆ Pick 'n Save</li> <li>◆ Mariano's Fresh Market</li> <li>◆ Metro Market</li> <li>◆ Copps</li> <li>◆ Scott's</li> <li>◆ Smith's</li> <li>◆ Fred Meyer</li> <li>◆ Foods Co.</li> <li>◆ Ruler Foods</li> </ul>
<b>Costco</b>	CA, NC, OR, TX, WA, NY, MN	
<b>Albertsons/Safeway</b>	CA, MD, NJ, TX, WA, CO, VA, MA	<ul style="list-style-type: none"> <li>◆ Acme</li> <li>◆ Albertsons</li> <li>◆ Amigos</li> <li>◆ Carrs</li> <li>◆ Hagen</li> <li>◆ Jewel-Osco</li> <li>◆ Lucky</li> <li>◆ Market Street</li> <li>◆ Pak 'n Save</li> <li>◆ Pavillions</li> <li>◆ Randall's</li> <li>◆ Safeway</li> <li>◆ Shaw's Super Saver Foods</li> <li>◆ Tom Thumb</li> <li>◆ United Supermarkets</li> <li>◆ Vons</li> </ul>

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